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13  
14 **UNITED STATES DISTRICT COURT**  
15 **CENTRAL DISTRICT OF CALIFORNIA**  
16  
17 **SOUTHERN DIVISION**

18 STEVEN RUPP, et al.,

19 Case No.: 8:17-cv-00746-JLS-JDE

20 Plaintiffs,

21  
22 **DECLARATION OF SEAN A. BRADY**  
23 **IN SUPPORT OF PLAINTIFFS'**  
24 **MOTION TO EXCLUDE THE**  
25 **TESTIMONY OF DEFENDANT'S**  
26 **EXPERT WITNESS RYAN BUSSE**  
27 **UNDER FEDERAL RULE OF**  
28 **EVIDENCE 702**

29 vs.

30 ROB BONTA, in his official capacity  
31 as Attorney General of the State of  
32 California,

33 Defendant.

34  
35 Hearing Date: April 28, 2023  
36 Hearing Time: 10:30 a.m.  
37 Courtroom: 8A  
38 Judge: Hon. Josephine L. Staton

## DECLARATION OF SEAN A. BRADY

I, Sean A. Brady, am an attorney at the law firm Michel & Associates, P.C., attorneys of record for Plaintiffs in this action. I am licensed to practice law before the United States Court for the Central District of California. I have personal knowledge of the facts set forth herein and, if called and sworn as a witness, I could and would testify competently to the truth of the matters set forth herein.

1. On January 6, 2023, Defendant served Plaintiffs with the Supplemental Expert Report and Declaration of Ryan Busse. A true and correct copy of Mr. Busse's expert report, is attached hereto as **Exhibit 1**.

2. On February 3, 2023, Plaintiffs served Defendant with the Expert Witness Rebuttal Report of J. Buford Boone. Attached hereto as **Exhibit 2** is a true and correct copy of Mr. Boone's expert rebuttal report.

I declare under penalty of perjury that the foregoing is true and correct.  
Executed within the United States on March 24, 2023.

/s/ Sean A. Brady  
Sean A. Brady  
Declarant

# **EXHIBIT 1**

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P. PATTY LI  
Supervising Deputy Attorney General  
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*Attorneys for Defendant Rob Bonta,  
in his official capacity<sup>1</sup>*

IN THE UNITED STATES DISTRICT COURT  
FOR THE CENTRAL DISTRICT OF CALIFORNIA  
WESTERN DIVISION

**STEVEN RUPP; STEVEN  
DEMBER; CHERYL JOHNSON;  
MICHAEL JONES;  
CHRISTOPHER SÉIFERT;  
ALFONSO VALENCIA; TROY  
WILLIS; and CALIFORNIA RIFLE  
& PISTOL ASSOCIATION,  
INCORPORATED.**

8:17-cv-00746-JLS-JDE

**SUPPLEMENTAL EXPERT  
REPORT AND DECLARATION  
OF RYAN BUSSE**

Courtroom: 8A  
Judge: The Honorable Josephine  
L. Staton

Action Filed: April 24, 2017

**ROB BONTA, in his official capacity  
as Attorney General of the State of  
California; and DOES 1-10,**

## Defendants.

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<sup>1</sup> Rob Bonta has succeeded former Attorney General Xavier Becerra as the Attorney General of the State of California. Pursuant to Federal Rule of Civil Procedure 25(d), Attorney General Bonta, in his official capacity, is substituted as the defendant in this case.

1                   **SUPPLEMENTAL EXPERT REPORT AND DECLARATION OF RYAN  
2                   BUSSE**

3                   I, Ryan Busse, declare under penalty of perjury that the following is true and  
4                   correct:

5                   1.       I have been asked by the Office of the Attorney General of the  
6                   California Department of Justice to prepare an expert report and declaration on the  
7                   purpose and use of certain firearm accessories or configurations. This supplemental  
8                   expert report and declaration (“Report”) is based on my own personal knowledge  
9                   and experience, and, if I am called as a witness, I could and would testify  
10                   competently to the truth of the matters discussed in this Report.

11                   **PROFESSIONAL QUALIFICATIONS**

12                   2.       I was raised with firearms as an integral part of my life. I began  
13                   shooting with various guns as a young boy and continued to regularly use and study  
14                   guns throughout my life (I am now 52). After graduating college, I entered the  
15                   firearms industry in 1992. I became a sales executive in the firearms industry in  
16                   1995, and I spent more than 25 years in this role. While in the industry, I  
17                   developed innovative sales teams, maintained relationships with the largest national  
18                   retailers, and was responsible for worldwide sales of millions of firearms. I built a  
19                   dealer-direct sales network that included more than 2500 firearms dealers including  
20                   locations in all 50 states, and I regularly visited these dealers. In my job, I also  
21                   studied and built sales programs that relied on understanding the technical nature of  
22                   most firearms available in the U.S. market, including AR-platform and other types  
23                   of rifles. During my career I played an integral role in building one of the largest  
24                   firearms companies in the United States, Kimber, and I was nominated by shooting  
25                   industry leadership many times for the SHOT Business “Shooting Industry Person  
26                   of the Year” Award.<sup>2</sup> I served in an executive sales capacity as Vice President of

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27                   2 SHOT Business is a trade publication of the shooting and firearms industry,  
28

1 Sales until August 2020. While in the industry I served as an advisor to the United  
2 States Senate Sportsmen's Caucus, and as the board chairman for Backcountry  
3 Hunters & Anglers, a national wildlife conservation and hunting organization.

4       3. I left the firearms industry because I was concerned about what I  
5 believed to be irresponsible and dangerous marketing and sales practices. Since I  
6 left, I have served as an advisor to the 2020 Biden presidential campaign, I have  
7 testified twice before the U.S. Congress about the firearms industry and gun policy  
8 (before the House Committee on Oversight and Reform<sup>3</sup> and the Joint Economic  
9 Committee<sup>4</sup>, respectively), I have been called to testify in closed-door briefings at  
10 the U.S. Senate, and I currently serve as a Senior Advisor to Giffords. I remain a  
11 proud and active gun owner, outdoorsman, and advocate for responsible gun  
12 ownership.

13       4. On behalf of the California Department of Justice, on October 13,  
14 2022, I submitted an expert declaration in *Miller v. Bonta*, a lawsuit in the Southern  
15 District of California (Case No. 3:19-cv-01537-BEN-JLB) challenging how  
16 California regulates assault weapons. On November 10, 2022, I submitted an  
17 expert declaration in *Duncan v. Bonta*, a lawsuit in the Southern District of  
18 California (Case No. 17-cv-01017-BEN-JLB) challenging how California regulates  
19 large-capacity magazines.

20       5. On behalf of the Oregon department of Justice, on November 30,  
21 2022, I submitted an expert declaration in *Oregon Firearms Federation Inc. v. State*  
22 *of Oregon* (Case No. **Error! Reference source not found.**), a lawsuit challenging  
23 Oregon's large-capacity magazine law. On behalf of the Washington Department of  
24 Justice, on October 17 2022, I submitted an expert declaration in *Brumback v.*

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25 and "Person of the Year" was the highest award given to an individual in the  
26 firearms industry.

27       <sup>3</sup> See <https://bit.ly/3CVDQc4>.

28       <sup>4</sup> See <https://bit.ly/3My2gLJ> .

1 *Ferguson* (Case No. 1:22-cv-03093-MKD), a lawsuit challenging Washington's  
2 large-capacity magazine law.

## OPINIONS

4        6. I have reviewed the statutory definitions of an “assault weapon,” as  
5 defined under California’s Assault Weapons Control Act (AWCA) in California  
6 Penal Code section 30515(a).<sup>5</sup> According to those definitions, certain firearms may  
7 qualify as an “assault weapon” if they have certain accessories attached to them or  
8 if they are configured in certain ways.

9       7. Under Penal Code section 30515(a), a semiautomatic centerfire rifle  
10      that does not have a fixed magazine qualifies as an assault weapon if it has any of  
11      the following features: (1) a pistol grip that protrudes conspicuously beneath the  
12      action of the weapon; (2) a thumbhole stock; (3) a folding or telescoping stock; (4)  
13      a grenade or flare launcher; (5) a flash suppressor; or (6) a forward pistol grip.<sup>6</sup> A  
14      semiautomatic centerfire rifle also qualifies as an assault weapon if it is equipped  
15      with a fixed magazine with the capacity to hold more than 10 rounds or has an  
16      overall length of less than 30 inches.<sup>7</sup>

17       8. Under Penal Code section 30515(a), a semiautomatic pistol that does  
18 not have a fixed magazine qualifies as an assault weapon if it has (1) a threaded  
19 barrel (capable of accepting a flash suppressor, forward handgrip, or silencer; (2) a  
20 second handgrip; (3) a barrel shroud that insulates the non-shooting hand from heat  
21 during firing; or (4) the ability to accept a detachable magazine at any location  
22 other than the pistol grip.<sup>8</sup> A semiautomatic pistol can also qualify as an assault

<sup>5</sup> See Cal. Penal Code § 30515, <https://bit.ly/3CtxtfEj>.

<sup>6</sup> Cal. Penal Code § 30515(a)(1)(A)-(F).

<sup>7</sup> Cal. Penal Code § 30515(a)(2)-(3).

<sup>8</sup> Cal Penal Code § 30515(a)(4).

1 weapon if it has a fixed magazine capable of holding more than 10 rounds.<sup>9</sup>

2       9. Finally, a shotgun qualifies as an assault weapon if it is semiautomatic  
3 and has both a folding or telescoping stock and a pistol grip beneath the action, a  
4 thumbhole stock, or a vertical handgrip.<sup>10</sup> A shotgun can also qualify as an assault  
5 weapon if it (1) is semiautomatic and lacks a fixed magazine, or (2) has a revolving  
6 cylinder that mechanically rotates after each shot.<sup>11</sup>

7       10. The AWCA also qualifies any semiautomatic centerfire firearm that is  
8 not a rifle, pistol, or shotgun and does not have a fixed magazine if it has any one of  
9 the following: a pistol grip beneath the action; a thumbhole stock; a folding or  
10 telescoping stock; a grenade or flare launcher; a flash suppressor; a forward pistol  
11 grip; a threaded barrel (capable of accepting a flash suppressor, forward handgrip,  
12 or silencer); a second handgrip; a barrel shroud; the capacity to accept a detachable  
13 magazine at a location outside the pistol grip.<sup>12</sup> A semiautomatic centerfire firearm  
14 that is not a rifle, pistol, or shotgun can also qualify as an assault weapon if it has a  
15 fixed magazine capable of holding more than 10 rounds or is less than 30 inches in  
16 length.<sup>13</sup>

17       11. Semiautomatic rifles, including AR-platform rifles, as well as  
18 semiautomatic pistols and shotguns, are capable of firing one shot per each pull of  
19 the trigger. Centerfire firearms are chambered with centerfire ammunition, which  
20 has the primer located in the center of the base of the cartridge case (as opposed to  
21 the rim of the cartridge). Today's modern rimfire ammunition is almost always  
22 confined to small and less powerful cartridges, such as the .22LR. Bullets fired

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24       <sup>9</sup> Cal. Penal Code § 30515(a)(5).

25       <sup>10</sup> Cal. Penal Code § 30515(a)(6).

26       <sup>11</sup> Cal. Penal Code § 30515(a)(7)-(8).

27       <sup>12</sup> Cal. Penal Code § 30515(a)(9).

28       <sup>13</sup> Cal. Penal Code § 30515(a)(10)-(11).

1 from these cartridges are small and light and move slower than almost all centerfire  
2 rifle ammunition. Rimfire chamberings are common in youth and “beginner”  
3 hunting rifles because they are relatively quiet, inexpensive and low recoil.  
4 Conversely, modern centerfire ammunition requires a detonation of a primer in the  
5 center of the cartridge (CENTERfire) and these cartridges are generally much more  
6 powerful than rimfire cartridges. As example, the .223 which is the most common  
7 AR-15 cartridge, fires bullets at more than 3000FPS (feet per second) vs a rimfire  
8 cartridge that propels bullets at around 1100FPS. This increased centerfire velocity  
9 greatly increases the range and lethality of centerfire cartridges. Most handgun  
10 cartridges are also now centerfire and these cartridges generally fire bullets much  
11 larger than rimfire cartridges usually at velocities of between 800 and 1500FPS.  
12 Generally, centerfire weapons fire higher caliber ammunition and/or fire it at higher  
13 velocities. The AR-platform, in particular, is the civilian version of the military’s  
14 select-fire M-16 and M-4 rifles, which are capable of fully automatic or burst firing.  
15 Based on my familiarity with the firearms industry, AR-platform rifles and similar  
16 semiautomatic rifles did not begin to sell in significant numbers until the late 2000s  
17 and particularly after the 2012 shooting at Sandy Hook Elementary in Newtown,  
18 CT.

19       12. The AR-platform is highly modular, enabling owners to customize  
20 their rifles with a variety of interchangeable components. Some components of a  
21 firearm are integral to its operation, such as a trigger mechanism or barrel, and the  
22 firearm will not function properly without them. But as I discuss here, the  
23 particular components identified in the AWCA, which qualify a weapon as an  
24 “assault weapon” if it is equipped with them, are not integral to the basic operation  
25 of any firearm and are not necessary to use a firearm effectively for self-defense or  
26 sporting purposes, such as hunting.

27       13. **Pistol grip that protrudes conspicuously beneath the action of the**  
28 **weapon.** Pistol grips beneath the action of a rifle or shotgun are not necessary to

1 operate those weapons as designed. A pistol grip is a feature incorporated into  
2 some firearm stocks that allows the shooter to control and aim the rifle during  
3 periods of rapid fire, such as situations encountered during military firefights.  
4 Alternative stock designs that do not incorporate this feature are currently sold in  
5 California, and prominent, widely referenced firearms authorities, such as  
6 [www.caligunner.com](http://www.caligunner.com), assess those options and the function of these compliant  
7 (non-pistol grip) rifles in this manner: “Everyone has a preference on what looks  
8 the ‘best’ but the top picks below are *all great functioning options.*”<sup>14</sup> As also  
9 noted on that website, while “[s]ome people that are critical of the featureless  
10 option complain of the aesthetics of the available options,” “the overall function of  
11 the rifle is mostly maintained,” and “several companies continue to innovate and  
12 provide new products that look decent and perform well considering the constraints  
13 of the law.”<sup>15</sup> While a pistol grip beneath the action of a rifle may be useful during  
14 military operations because it helps the shooter stabilize the weapon and reduce  
15 muzzle rise during rapid fire, a pistol grip is not necessary to operate a firearm  
16 safely in lawful self-defense situations.

17       14. **Thumbhole stocks.** Thumbhole stocks have a hole in the stock that  
18 allows the shooter to insert their thumb and mimic the effects of a pistol grip. A  
19 thumbhole stock is not necessary to operate a shoulder weapon as designed. A  
20 thumbhole stock functions in almost identical fashion to a pistol grip and assists the  
21 shooter in rifle control during periods of rapid fire. Again, the current non-  
22 thumbhole and California compliant designs are advertised and sold as functioning  
23 options for proper use of AR15s and their variants.

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26       <sup>14</sup> <https://caligunner.com/california-compliant-featureless-rifle/> (emphasis  
27 added) (last visited Dec. 30, 2022). A true and correct copy of this caligunner.com  
webpage is attached as Exhibit A.

28       <sup>15</sup> Ex. A.

1       15. **Folding or telescoping stock.** The stock of a rifle or shotgun is the  
2 part a firearm that allows it to be held at the shoulder for firing. A folding or  
3 telescoping stock can be collapsed to shorten the length of the rifle (or extended to  
4 extend its length). A rifle or shotgun does not need an adjustable stock to operate  
5 as designed and can be equipped with fixed-length stocks instead. Original rifles  
6 on which the current existing and newly manufactured AR-15s are based and that  
7 were accepted by hundreds of thousands of military officers as their weapon of  
8 choice for decades, did not incorporate a folding stock and no credible firearms  
9 authority claims that those firearms did not function properly. Further, there are  
10 still non-folding stock options available today and all are sold and advertised as  
11 fully functioning options for semiautomatic rifles.

12       16. **Grenade or flare launcher.** A grenade and flare launcher is not  
13 necessary to operate a firearm as designed. These features are used on military  
14 battlefields in which mass casualties or illuminating a battlefield are desirable but  
15 have no relevance to civilian self-defense use.

16       17. **Flash suppressor.** A flash suppressor is a device that is attached to  
17 the muzzle of a firearm and reduces or redirects the flash when shooting. A flash  
18 suppressor is not necessary to operate a firearm as designed. This feature is affixed  
19 to military rifles to redirect the light (muzzle flash) generated from the burning of  
20 gases while firing which reduces the prevalence of “night blindness” that can  
21 develop during low-light firefights. A flash suppressor also disguises the origin of  
22 fire and avoid detection by enemy forces but has marginal benefit in civilian self-  
23 defense situations, even in low-light conditions. It is widely accepted that the most  
24 effective self-defense guns are handguns and home-defense shotguns. Like the AR-  
25 15 (and similar rifles), these guns also produce muzzle flash and yet almost none  
26 incorporate or require a “flash suppressor” device in order to operate effectively.

27       18. **Forward pistol grip.** A forward pistol grip on a rifle, pistol, or  
28 shotgun enables a shooter to stabilize the weapon with the non-trigger hand during

1 fire, and is not necessary to operate any firearm as designed. As evidence, most  
2 AR-15s sold today—including the best-selling rifles such as the Smith and Wesson  
3 M&P15, which is generally accepted as the best-selling AR-15 in the United  
4 States—do not incorporate a forward pistol grip, and I am not aware of any credible  
5 firearms authority that states or teaches that these rifles do not function as designed.

6 **19. Fixed magazine with the capacity to accept more than 10 rounds.**

7 A fixed magazine capable of holding more than 10 rounds of ammunition is not  
8 necessary to operate any firearm as designed. As explained below in connection  
9 with detachable magazines, all firearms are capable of functioning with magazines  
10 capable of holding fewer than 10 rounds, including magazines that were originally  
11 capable of holding more than 10 rounds but have been permanently modified to  
12 hold 10 rounds or less. A fixed magazine of 10 rounds or more is generally a  
13 “work-around” to avoid the regulations on detachable magazines, but the same  
14 functional realities apply to both detachable and fixed magazines.

15 **20. Detachable magazines.** Detachable magazines enable a shooter to  
16 replace an empty or depleted magazine with a fresh magazine to resume firing.  
17 While semi-automatic rifles like the AR-15 are not generally considered to be good  
18 choices for self-defense situations, a rifle that lacks a fixed magazine, even when  
19 retrofitted with a “magazine lock” or “bullet button” that requires the use of a tool  
20 (or even a spare round) to release a spent magazine, will function as designed and  
21 can be reloaded after firing. Detachable magazines may hold more than 10 rounds  
22 of ammunition, which California law defines as “large-capacity magazines.”<sup>16</sup>  
23 Despite the recent popularization of large-capacity magazines, it is important to  
24 note that I am not aware of a single existing firearm that requires a large-capacity  
25 magazine to function as designed. By this I mean that all firearms that can accept a  
26 large-capacity magazine can also accept a magazine that holds 10 or fewer rounds

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27  
28 <sup>16</sup> Cal. Penal Code § 16740.

1 and function precisely as intended. This is true even of AR-platform rifles.  
2 Although many AR-platform rifles are sold with a 30 round magazine, the  
3 manufacturers all offer the optional purchase of 10 round of even lower capacity  
4 magazines. There are many pistols (such at the very popular Model 1911—which  
5 was the accepted sidearm of the U.S. Military for decades and is still one of the  
6 most widely sold guns in the United States) that are built for magazines of eight  
7 rounds or less. While larger 10-plus round magazines exist for the 1911 and other  
8 similar pistols, a smaller magazine (standard seven or eight round) is considered  
9 preferable by almost all consumers because the physical size/profile of the shorter  
10 magazine is easier to carry, shoot and conceal. Still today the 1911 and other  
11 similar guns which are built to function with sub-10 round magazines are built by  
12 many gun companies (Smith and Wesson, Ruger, Kimber, Springfield, Rock Island,  
13 Dan Wesson, and many other companies build and sell these 1911 pistols) and they  
14 are sold in high volumes by most retailers in the United States. These guns are still  
15 considered extremely effective self-defense firearms by many of the leading  
16 firearms trainers in the country.

17       **21. Overall length of less than 30 inches.** A firearm does not need to be  
18 less than 30 inches in length to operate as designed. There is a long-accepted  
19 history of regulating “short barreled rifles” under the National Firearms Act (NFA),  
20 which was implemented due to criminal actions resulting from concealing and then  
21 deploying “short barreled rifles” in acts of surprise mass murder. Generally, there  
22 are only two ways to reduce the length of an AR-15 platform firearm and those are  
23 the barrel length (long-regulated by the NFA) and stock (collapsible or folding  
24 designs were not yet available in 1934 when the NFA was enacted). In other  
25 words, the AWCA’s regulations on collapsible and folding stocks and short barrels  
26 are merely addressing the same and historically accepted regulation on rifle length  
27 as the NFA.

1       22. **Threaded barrel.** A threaded barrel enables a shooter to quickly  
2 attach and detach a variety of accessories to and from the barrel of a firearm. A  
3 threaded barrel that accepts a flash suppressor or a forward handgrip (which were  
4 discussed above) is not necessary to operate a firearm as designed. A threaded  
5 barrel capable of accepting a silencer is also not necessary to operate a firearm as  
6 designed.

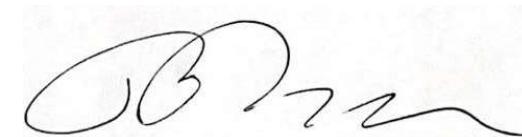
7       23. **Barrel shroud.** A barrel shroud wraps around the barrel of a pistol,  
8 enabling the shooter to grasp the barrel during firing without burning the non-  
9 trigger hand. A barrel shroud is not necessary to operate a pistol as designed.

10       24. Based on my experience, a firearm does not need any of the devices,  
11 accessories, or configurations listed in the AWCA to operate as intended, and they  
12 are not necessary to use a firearm effectively for self-defense or other sporting  
13 purpose, like hunting.

14       I declare under penalty of perjury that the foregoing is true and correct.

15       Executed on January 6, 2023 at Kalispell, Montana.

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Ryan Busse

## **EXHIBIT A**



## 2021 Featureless AR-15 Rifles: All You Need to Know!

In [CA Law](https://CaliGunner.com/category/ca-law/) (<https://CaliGunner.com/category/ca-law/>), [Firearms](https://CaliGunner.com/category/firearms/) (<https://CaliGunner.com/category/ca-law/firearms/>), [Guide](https://CaliGunner.com/category/guide/) (<https://CaliGunner.com/category/guide/>) by Jim /

.)

### What is a Featureless Rifle?

A Featureless Rifle is the term used to describe a semi-automatic rifle that **does not** have any of the following:

1. A pistol grip that protrudes conspicuously beneath the action of the weapon
2. A thumbhole stock
3. A folding or telescoping stock
4. A grenade launcher or flare launcher
5. A flash suppressor
6. A forward pistol grip

### What do Rifles with Features Look Like?

The figure below labels the features a normal AR-15 has that gun owners in free states typically have (minus the grenade launcher).



[www.CaliGunner.com](http://www.CaliGunner.com)

*Disclaimer: I'm not a lawyer, this is meant to be helpful information not legal advice.*

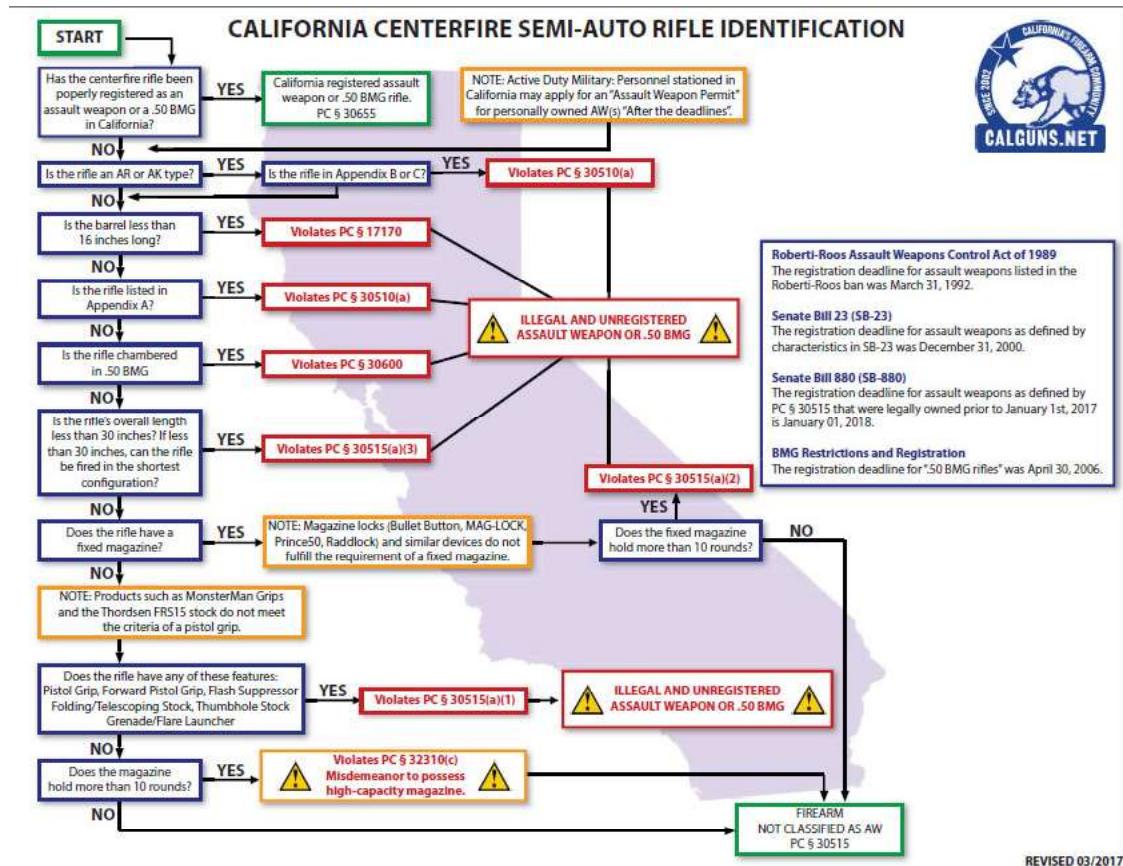
So even if you have JUST ONE of these features on your semi-automatic centerfire rifle you own what California considers to be an "assault weapon" unless your magazine is fixed. The only way for Californians to possess these features legally on a semi-automatic centerfire rifle is to either have A) the weapon registered as an "assault weapon" or B) have a fixed magazine which we will discuss later.

## **Can I Still Register My Rifle as an Assault Weapon?**

Nope. The option to register a rifle as an "assault weapon" in California only applied to guns that were built or bought before 2017, **you then had until July 1 2018 to register with the DOJ (<https://cfars.doj.ca.gov/login.do>)**. So again, if you are new to the AR game you have the choice of either fixing the magazine with some type of magazine lock or going featureless.

# How do I know if My Rifle is Legal?

We ideally don't want to be criminals, but the state sure is making things difficult. Nevertheless, Calguns.net constructed an informative flowchart to help gun owners determine if their rifle is legal. Start at the top left of the chart and answer the questions accordingly.



Here are some definitions to help understand the chart as defined by 11 CCR § 5469:

The following definitions apply to terms used in the identification of assault weapons pursuant to Penal Code section 30515:

- (a) **"Detachable magazine"** means any ammunition feeding device that can be removed readily from the firearm with neither disassembly of the firearm action nor use of a tool being required. A bullet or ammunition cartridge is considered a tool. Ammunition feeding device includes any belted or linked ammunition, but does not include clips, en bloc clips, or stripper clips that load cartridges into the magazine.
- (b) **"Flash suppressor"** means any device designed, intended, or that functions to perceptibly reduce or redirect muzzle flash from the shooter's field of vision.
- (c) **"Forward pistol grip"** means a grip that allows for a pistol style grasp forward of the trigger.
- (d) **"Pistol grip that protrudes conspicuously beneath the action of the weapon"** means a grip that allows for a pistol style grasp in which the web of the trigger hand (between the thumb and index finger) can be placed below the top of the exposed portion of the trigger while firing.

- (e) "Thumhole stock" means a stock with a hole that allows the thumb or the trigger hand to penetrate into or through the stock while firing.

## Legal Barrel and Overall Rifle Lengths

California requires the following minimum lengths for your rifle:

- **16" minimum barrel length**, pinned and welded muzzle devices count for length (meaning you could have a 14.5" barrel as long as you have a permanently attached muzzle device making the overall like 16" or more)
- **30" minimum overall length for centerfire-semi-automatics** (such as AR-15's chambered in .223/5.56 NATO), measured with stock in the shorted position the rifle can still fire in
- **26" for rimfires and non-semi centerfires**; measured with stock in the shorted position the rifle can still fire in

So this is helpful, but maybe you want it spelled out a little more, I got it. Let's keep going.

To have a featureless rifle you must, well, remove the features! Let's address each item and discuss the options.

## Featureless Grip and Stock Options

If you have become accustomed to shooting an AR-15 with features in the past, **the grip and stock configuration will be the most drastic change when moving to a featureless rifle**. With that said, after you spend plenty of time on the range you will eventually adapt. Everyone has a preference on what looks the "best" but the top picks below are all great functioning options.

### The Thorsen FRS Stock ([//brownells.7eer.net/c/1200207/60594/1625?u=https%3A%2F%2Fwww.brownells.com%2Frifle-parts%2Fstock-parts%2Fbuttstocks%2Far-15-frs-15-stock-assy-quick-detach-carbine-length-prod87747.aspx](http://brownells.7eer.net/c/1200207/60594/1625?u=https%3A%2F%2Fwww.brownells.com%2Frifle-parts%2Fstock-parts%2Fbuttstocks%2Far-15-frs-15-stock-assy-quick-detach-carbine-length-prod87747.aspx))

[https%3A%2F%2Fwww.brownells.com%2Frifle-parts%2Fstock-parts%2Fbuttstocks%2Far-15-frs-15-stock-assy-quick-detach-carbine-length-prod87747.aspx](http://brownells.7eer.net/c/1200207/60594/1625?u=https%3A%2F%2Fwww.brownells.com%2Frifle-parts%2Fstock-parts%2Fbuttstocks%2Far-15-frs-15-stock-assy-quick-detach-carbine-length-prod87747.aspx)) is an incredibly popular choice for many California shooters. What you are essentially getting with a Thorsen is a conventional rifle stock for your AR-15. The main advantage over most other featureless options is ergonomics. It allows for a much more natural feel since your thumb can wrap around the grip of the firearm which provides more comfort and a sense of control.



(<http://brownells.7eer.net/c/1200207/60594/1625?u=https%3A%2F%2Fwww.brownells.com%2Frifile-parts%2Fstock-parts%2Fbuttstocks%2Far-15-frs-15-stock-assy-quick-detach-carbine-length-prod87747.aspx>).

**The Hera CQR CA Compliant Stock** (<https://amzn.to/2OWuscA>) is another option that many feel is more aesthetic than the Thordsen, of course this is subjective. There is a non-compliant version with a thumbhole so be sure to buy the compliant version as shown below. One thing I really like is that it has spacers available to adjust the length of pull.



Another option is to use a fin grip (<http://brownells.dts2xn.net/Q5dQY>) like the one below. They are a cheap option that appears to appease the powers that be in Sacramento. Once installed, your thumb cannot wrap around the grip making it good to go.



[\(brownells.dts2xn.net/Q5dQY\)](http://brownells.dts2xn.net/Q5dQY)

[AR-15 MONSTERMAN GRIP \(HTTP://BROWNELLS.DTS2XN.NET/Q5dQY\)](http://BROWNELLS.DTS2XN.NET/Q5dQY)

**Using a “fin grip” and fixed stock is the cheapest way to convert your AR-15 into a featureless rifle (with compliant muzzle device of course).**



CALIFORNIA COMPLIANT FEATURELESS AR-15 WITH MONSTERMAN GRIP

If you do go with the grip option, be sure to select a non-folding or non-telescoping stock. Many people will take an adjustable stock and permanently pin it while others prefer to just buy a fixed stock like the ones below.



(<https://brownells.7eer.net/c/1200207/60594/1625?u=https%3A%2F%2Fwww.brownells.com%2Frifle-parts%2Fstock-parts%2Fbuttstocks%2Far-15-moe-stock-fixed-mil-spec-prod56792.aspx>).

MAGPUL FIXED STOCK - SEE THE LATEST PRICE AT  
BROWNELLS  
(<https://BROWNELLS.7EER.NET/C/1200207/60594/1625?u=https%3A%2F%2Fwww.brownells.com%2Frifle-parts%2Fstock-parts%2Fbuttstocks%2Far-15-moe-stock-fixed-mil-spec-prod56792.aspx>)



(<https://brownells.7eer.net/c/1200207/60594/1625?u=https%3A%2F%2Fwww.brownells.com%2Frifle-parts%2Fstock-parts%2Fbuttstocks%2Far-15-sabertube-stock-fixed-mil-spec-prod79482.aspx>).

AR-15 SABERTUBE STOCK  
(<https://BROWNELLS.7EER.NET/EB99R>)



(<https://brownells.7eer.net/eb99r>).

DOUBLESTAR ACE ULTRALITE STOCK, CHECK PRICE AT  
BROWNELLS (<https://BROWNELLS.7EER.NET/EB99R>)

## See all AR-15 Fixed Stocks (<https://brownells.dts2xn.net/5V032>)

### Top Compliant Muzzle Brakes



Flash Suppressor



Muzzle Brake

Flash suppressor means any device designed, intended, or that functions to perceptibly reduce or redirect muzzle flash from the shooter's field of vision. On the other hand a "muzzle brake", also known as a compensator, is a device connected to the muzzle of a firearm that redirects propellant gases to counter recoil and unwanted rising of the barrel during rapid fire.

For this reason, muzzle brakes are a popular choice for gun owners even where flash hiders are permissible. Some of my favorite muzzle brakes include:



(<http://brownells.7eer.net/c/1200207/60594/1625?u=https%3A%2F%2Fwww.brownells.com%2Frifle-parts%2Fmuzzle-devices%2Fcompensators-amp-muzzle-brakes%2Far-15-gamma-556-ex-muzzle-brake-5-56-prod105087.aspx>)

GAMMA VG6 – SEE MORE DETAILS  
[HTTP://BROWNELLS.7EER.NET/C/1200207/60594/1625?U=https%3A%2F%2Fwww.brownells.com%2Frifle-parts%2Fmuzzle-devices%2Fcompensators-amp-muzzle-brakes%2Far-15-gamma-556-ex-muzzle-brake-5-56-prod105087.aspx]



(<https://www.brownells.com/rifle-parts/muzzle-devices/compensators-and-muzzle-brakes/miculek-compensator-22-caliber-1-2-28-steel-black-sku231000038-5573-12990.aspx?rrec=true>).

MICULEK COMPENSATOR - SEE MORE DETAILS  
(<https://www.brownells.com/rifle-parts/muzzle-devices/compensators-and-muzzle-brakes/miculek-compensator-22-caliber-1-2-28-steel-black-sku231000038-5573-12990.aspx?rrec=true>)

## See all Muzzle Brakes

(<https://brownells.dts2xn.net/LQdGY>)

## Is Going Featureless the Only Way to Be Compliant?

No! There is another option that allows you to keep your features (pistol grip, folding/telescoping stock, forward grip and flash suppressor) while still being completely legal. This is the fixed or magazine lock option.

## Fixed or Locked Magazine Option

This option allows the use of features on your AR-15 by fixing or locking the **10 round magazine (or less)** in your rifle while the lower is attached to the upper receiver. This is often done with a device like the Juggernaut Tactical Hellfighter Kit available at Brownells. (<https://brownells.7eer.net/c/1200207/60594/1625?u=https%3A%2F%2Fwww.brownells.com%2Frifle-parts%2Freceiver-parts%2Ftakedown-parts%2Fpins%2Far-15-hellfighter-california-compliant-mod-kit-black-prod117045.aspx>) With a device like this you can use all the “evil features” described at the beginning of the article and still be legal. This is a great option for those that can’t get over the looks of a featureless rifle.



(<https://amzn.to/3jotQv9>)

**Important Note:** As mentioned above, the fixed or locked magazine option requires a 10 round magazine (or less). The magazine laws in California have been in flux (<https://CaliGunner.com/high-capacity-magazines/>) allowing opportunities for CA citizen to legally purchase standard capacity magazines (also improperly known as "large capacity magazines"). **Fixing a legally acquired 30 round magazine to your rifle with features is illegal, don't do it.**

However, using legally acquired 30 round magazines in your featureless rifle is allowed. With that said, you still might get hassled for doing so, the choice is yours.



(<https://brownells.7eer.net/c/1200207/60594/1625?u=https%3A%2F%2Fwww.brownells.com%2Frifle-parts%2Freceiver-parts%2Ftakedown-parts%2Fpins%2Far-15-hellfighter-california-compliant-mod-kit-black-prod117045.aspx>).

Below is a demonstration on the use of a Juggernaut Tactical AR-15 Hellfighter California-Compliant Mod Kit (<https://brownells.7eer.net/c/1200207/60594/1625?u=https%3A%2F%2Fwww.brownells.com%2Frifle-parts%2Freceiver-parts%2Ftakedown-parts%2Fpins%2Far-15-hellfighter-california-compliant-mod-kit-black-prod117045.aspx>).

**See also The Complete Guide to the Hellfighter Mod Kit (<https://CaliGunner.com/juggernaut-tactical-hellfighter-complete-guide/>)**

## DIY AR-15 Fixed Magazine

There is a way to inexpensively fix a ten round magazine in your AR-15 allowing you to keep your features. This configuration requires a loader like the BF-10 seen here (<https://CaliGunner.com/bear-flag-defense-bf-10-loader-review/>). For the fixed install you will need the following tools:

- Drill (<https://amzn.to/2yRGQXL>).
- 6-32 Drill and Tap Set (<https://amzn.to/2KjSH6g>).
- 3/8" Set Screw (<https://amzn.to/2Kx6sL1>).

**Step 1:** Remove bolt catch and magazine catch from your lower receiver (for lower receiver assembly/disassembly, check my article here (<https://CaliGunner.com/ar-15-lower-receiver-assembly/>)).

**Step 2:** Drill hole for 6-32 tap through the top of your receiver at the end of the bolt catch groove like shown below.



**Step 4:** Reinstall magazine catch then install your 10 round magazine you want to fix in place.

**Step 5:** Thread 6-32 set screw (3/8" long) into hole so that it is tight against the magazine catch.



**Step 6:** Reinstall bolt catch. That's it!

Just make sure you have the set screw tight so that the magazine won't release even with lots of force. The nice thing about this option is that it is easily removable if traveling to other states. Again for this option, you will want a loader like the [BF-10](https://Caligunner.com/bear-flag-defense-bf-10-loader-review/) (<https://Caligunner.com/bear-flag-defense-bf-10-loader-review/>).

## **Helpful Additions to Featureless Rifles**

Several of the grip and stock options above keep the thumb of your trigger hand in an unusual position and can make it more difficult to select the safety. There are two items I recommend to address these issues. The first is a thumb rest made by Juggernaut Tactical. It replaces the rear takedown pin and provides a comfortable position to rest your thumb.



[\(https://jtactical.com/products/59\)](https://jtactical.com/products/59)

JT THUMB REST  
(HTTPS://JTACTICAL.COM/PRODUCTS/59)

The second item we recommend is an ambidextrous safety. If you're right-handed using a featureless rifle your trigger hand will not be able to select the safety; you'll have to use the opposite hand. Once you install an ambidextrous-safety you can easily select the safety with your trigger hand.



[\(https://www.brownells.com/rifle-parts/safety-parts/safeties/semi-auto-ambidextrous-safety-sku231015012-5591-13010.aspx?rrec=true\)](https://www.brownells.com/rifle-parts/safety-parts/safeties/semi-auto-ambidextrous-safety-sku231015012-5591-13010.aspx?rrec=true)

DPMS - AR-15 AMBIDEXTROUS SAFETY  
(HTTPS://WWW.BROWNELLS.COM/RIFLE-PARTS/SAFETY-PARTS/SAFETIES/SEMI-AUTO-AMBIDEXTROUS-SAFETY-SKU231015012-5591-13010.ASPX?RREC=TRUE).

## **Advantages and Disadvantages of Going Featureless**

From a practical perspective, the featureless rifle remains completely usable in the sense that you can reload the rifle in a conventional and timely manner without the need of any tools or disassembly of the lower receiver from the upper receiver. From this perspective using a featureless rifle is a better option for self-defense.

Some people that are critical of the featureless option complain of the aesthetics of the available options. While that may be true for some, the overall function of the rifle is mostly maintained. Another possible downside of the featureless set up is that the authorities could eventually change the laws once more forcing law-abiding citizens to

# Conclusion

For the time being, going featureless seems to be the best legal configuration when keeping the functionality of the rifle in mind. We are already seeing several companies continue to innovate and provide new products that look decent and perform well considering the constraints of the law.

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([//brownells.7eer.net/c/1200207/526950/1625](http://brownells.7eer.net/c/1200207/526950/1625)).

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13  
14 **UNITED STATES DISTRICT COURT**  
15 **CENTRAL DISTRICT OF CALIFORNIA**  
16 **SOUTHERN DIVISION**

17 STEVEN RUPP, et al.,

18 Case No.: 8:17-cv-00746-JLS-JDE

19 Plaintiffs,

20 **EXPERT WITNESS REBUTTAL**  
21 **REPORT OF J. BUFORD BOONE**  
22 **III**

23 vs.

24 XAVIER BECERRA, in his official  
25 capacity as Attorney General of the State  
26 of California,

27 Defendant.

1 **ASSIGNMENT**

2 I have been asked by counsel for the plaintiffs in the above described matter to  
3 provide my opinion on statements made concerning “assault weapons” and features  
4 that California uses to define same in the supplemental expert report and declaration  
5 of Colonel (Ret.) Craig Tucker.

6 **COMPENSATION**

7 I am being compensated for my time in this case at the rate of \$700 per hour.  
8 My compensation is not contingent on the results of my analysis or the substance of  
9 my testimony.

10 **BACKGROUND AND QUALIFICATIONS**

11 I am currently the sole member of Boone Ballistics, LLC and a retired  
12 Supervisory Special Agent (SSA) of the Federal Bureau of Investigation (FBI). I  
13 was the primary SSA with oversight of the FBI Ballistic Research Facility (BRF)  
14 from April 15, 1997 – August 31, 2012.

15 As the Member of Boone Ballistics, LLC, I have been employed as an expert  
16 witness in civil and criminal cases. Additionally, I have been employed as a  
17 consultant in civil and criminal cases. I teach internal, external and terminal  
18 ballistics, including selection of ammunition and weapons for efficiently  
19 incapacitating an aggressive human adversary. I have lectured on the applicability  
20 of the Hague Convention of 1899 to the selection of ammunition for use by the U.S.  
21 Military. I conduct time of flight testing to better document small arms projectile  
22 flight as it applies to the use of a Ballistic Coefficient to predict projectile impact at  
23 long distances.

24 Prior to my first full-time law enforcement employment, I served as a reserve  
25 police officer or Deputy Sheriff with Tuscaloosa County, Alabama, Upson County,  
26 Georgia, Las Animas County, Colorado and Trinidad Colorado.

27  
28

1      Approximately May of 1988 I was hired as a Police Officer with the Tuscaloosa,  
2      Alabama, Police Department. I was subsequently offered a position as a Special  
3      Agent of the Federal Bureau of Investigation (FBI) in July of 1988. I began  
4      employment with the FBI on 07/25/1988. I was graduated from the FBI Academy on  
5      10/21/1988. My first duty station was New Haven, Connecticut.

6            I have maintained an interest in firearms all my adult life. I have shot  
7      competitively. My firearms scores at the FBI Academy were sufficiently high to  
8      allow me to attempt the “Possible” Club. I was successful on my first attempt. To  
9      shoot a “Possible”, Agents must fire a perfect score on a very difficult course.  
10     Though there were in excess of 10,000 Agents in 1988, my “Possible” was  
11     approximately number 1,198 in FBI history.

12        Upon arrival in New Haven, I was assigned to the Reactive Squad conducting  
13      background, bank robbery and fugitive investigations. I later served as the Fugitive  
14      Coordinator for the New Haven Division. I was named “Detective of the Month” by  
15      the Bronx Homicide Task Force for the capture of an America’s Most Wanted  
16      fugitive.

17        I successfully completed FBI Firearms Instructor School in July of 1989. This  
18      qualified me to teach firearms to Field Agents.

19        I was transferred to the Organized Crime/Narcotics Squad in July of 1990. I  
20      primarily participated in investigations of drug gangs. These investigations  
21      typically involved significant amounts of surveillance, electronic monitoring and the  
22      service of multiple search warrants. I also participated in organized crime  
23      investigations. I have participated in multiple arrests in urban and suburban areas.

24        I was named the Principal Firearms Instructor (PFI) of the New Haven  
25      Division of the FBI in November of 1992. I maintained that position until I  
26      transferred to the Firearms Training Unit at the FBI Academy, Quantico, Virginia.

27        As PFI, I oversaw all firearm and defensive tactics training of the 90+ Agents  
28      in the New Haven Division of the FBI. I coordinated training sessions for all

1 firearms issued to general Agents. This included revolvers, pistols, carbines and  
2 shotguns. It also included coordination of deadly force training with the Principal  
3 Legal Advisor. During my time as the PFI, the FBI transitioned from revolvers to  
4 semi-automatic pistols. The training for this transition was my responsibility for  
5 New Haven Division Agents.

6 In September of 1989 I was admitted to the FBI New Haven Special Weapons  
7 and Tactics (SWAT) Team as a Sniper/Observer. I successfully passed both the two  
8 week Sniper/Observer and the two week Basic SWAT courses at the FBI Academy.  
9 I served operationally on the New Haven SWAT Team until my transfer to the FBI  
10 Firearms Training Unit at the FBI Academy, Quantico, Virginia.

11 In March of 1996, I was promoted to a position as a Term GS-14 Firearms  
12 Instructor at the Firearms Training Unit (FTU), FBI Academy, Quantico, Va.  
13 During this assignment, I performed line and PFI instruction of Agent trainees. I  
14 provided or oversaw line and combat instruction in handguns, carbines and  
15 shotguns. I also provided judgmental instruction utilizing Firearms Training  
16 Simulator (FATS) equipment. The FATS training was used primarily to teach  
17 Agents when the use of deadly force was appropriate, and when it was not.

18 I was transferred to the Ballistic Research Facility (BRF) of the FTU on April  
19 15, 1997. I maintained my position at the BRF for more than 15 years, retiring on  
20 August 31, 2012. I received a permanent promotion to Supervisory Special Agent in  
21 September of 1997.

22 The BRF has responsibility for testing and evaluating all ammunition used  
23 operationally by the FBI. The BRF was created following a 1986 shootout wherein  
24 a subject was fatally injured by FBI projectiles but continued fighting and ultimately  
25 killing two Agents after receiving the “fatal” wound. A thorough investigation  
26 revealed the primary cause of the failure to rapidly incapacitate was the projectiles  
27 lack of sufficient penetration in the subject’s body. It stopped short of the heart.

1        This investigation spawned research into the mechanics of wound ballistics.  
2        Ultimately, the research led to the creation of a scientifically repeatable method of  
3        comparing the potential effectiveness of individual cartridges. The resultant test has  
4        been referred to as the “FBI Method”. The BRF published test findings available  
5        upon official request of Law Enforcement and Military agencies. The BRF became  
6        the most trusted source of ballistic information in the Law Enforcement and Military  
7        community.

8        As SSA of the BRF, my responsibility was to oversee all aspects of the  
9        research. I was the only full-time person at the BRF until a support person (non-  
10       Agent) was assigned as an Engineering Technician, Ballistics (ETB), in the last  
11       quarter of 1998. I was the Supervisor and rating official of the ETB.

12       As SSA, I performed or directed all functions of the BRF. I hand loaded  
13       cartridges, put test firearms together, hand-fired firearms for testing, built tissue  
14       simulant blocks, conducted penetration testing and reported on same. I created a  
15       relational database to store data and report test results. I operated sophisticated  
16       ballistic testing and photographic equipment. I was frequently sought out to train  
17       others in the use of this equipment.

18       I was the primary author of specifications for ammunition procurements for  
19       the FBI. This included ammunition used for training as well as for operational use,  
20       commonly referred to as “Service” ammunition.

21       I was the primary author of the FBI Body Armor Test Protocol at its inception.

22       I directed the creation of a procurement of 5.56mm NATO ammunition using  
23       piezoelectric conformal transducers for pressure testing.

24       The BRF served as the primary source of ballistic information regarding  
25       ammunition and firearms for all FBI Agents. Field Agents routinely referred local  
26       and state partners to me for ballistic information and advice.

27       During my service at the BRF, a strong liaison was formed with the  
28       Department of Defense (DOD). The BRF performed testing for and consultation

1 with the DOD on many occasions. My expertise has been, and continues to be,  
2 sought out and relied upon by the Special Operations Community. During my  
3 service at the BRF, the Department of Defense Law of War Chair established  
4 protocol that all new DOD small arms munitions required testing and evaluation by  
5 the FBI BRF prior to legal authorization being granted for their use.

6 I have been a participant in a number of government sponsored Integrated  
7 Product Teams researching ballistics, including:

8 Joint Services Wound Ballistics  
9 Lead Free Ammunition  
Protective Armor  
10 Armor Piercing Ammunition development

11 In 2002, I traveled to Darligen, Switzerland, at the specific request of the  
12 Department of State, to represent the United States in discussions of wound  
13 ballistics.

14 I have provided numerous live-fire terminal ballistic demonstrations to local,  
15 state and federal law enforcement officers as well as to all branches of the United  
16 States Military.

17 I have conducted international presentations on wound ballistics, ammunition  
18 selection, weapon selection, sniper operations and body armor.

19 I have briefed the Secretary of the Army and provided, at his request, my  
20 professional opinion of a 5.56mm NATO cartridge intended to replace the M855.

21 I have functioned (and continue to) as the primary instructor of 57 Basic Law  
22 Enforcement Sniper/Observer schools. Approximately 1,091 students have  
23 successfully completed this course under my instruction.

24 I consistently received high performance ratings in the FBI. I received the  
25 highest possible, "Outstanding", each of the last 4 years of my service. I have  
26 received numerous letters of commendation and performance awards.

27 I was the 2008 recipient of the National Defense Industrial Association Joint  
28 Armaments Committee's Gunnery Sergeant Carlos Hathcock Award.

1 Publications I authored during my FBI employment and restricted to official  
2 law enforcement or government request:

3 Review of Accuracy 1<sup>st</sup> Training  
4 Weapon Selection – Revision III  
5 Ammunition Selection 2007  
6 TSWG MURG Briefing Accuracy Expectations  
7 AIM III TSWG Briefing 3/16/2010  
8 Wound Ballistics  
9 B2 Sniper Rifle Cleaning Method

10 Publication I authored during my FBI employment that is publicly available:

11 FBI Body Armor Test Protocol

12 Publication that I have co-authored that is publicly available:

13 Terminal Ballistics: The Science of Ballistic Projectile Wounding

14 I currently teach a two-hour basic wound ballistics class for recruits at the  
15 Law Enforcement Academy-Tuscaloosa, a branch of the Alabama Peace Officers  
16 Standards & Training Commission. I also teach an annual eight hour wound  
17 ballistics and ammunition selection class at the Tuscaloosa Police Department,  
18 Tuscaloosa, Alabama.

## 19 **OPINIONS AND ANALYSIS**

20 It is my opinion that Colonel (Ret.) Tucker's report is plagued by inaccuracies  
21 and opinions that are contradicted by fact.

22 His claim that a single small arms projectile is capable of "severing the upper  
23 body from the lower body, or decapitation" is so ridiculous that it should, and  
24 actually does, cast doubt on his qualifications as an expert in the field of firearms,  
25 particularly as it relates to wound ballistics.

26 Additionally, there is an inconsistency in his opinion in that, at one point, he  
27 states that stabilizing attributes (pistol grips) are inappropriate for self-defense while  
28 in the next point he says an attribute (folding stock) is inappropriate for self-defense  
because it is destabilizing.

1 Examples and explanations supportive of my opinion follow. For clarity, I  
2 have placed Colonel (Ret) Tucker's words in italics.

3 It is important to define and understand the words "Caliber", "Cartridge",  
4 "Round" and "Yaw". Appropriate definitions can be found in the Glossary on the  
5 website of the Sporting Arms and Ammunition Manufacturer's Institute (SAAMI):  
6 <https://saami.org>

7 **Caliber**

- 8 1. A term used to designate the specific cartridge(s) for which a firearm is  
9 chambered.
- 10 2. Firearms: The approximate diameter of the circle formed by the tops of  
11 the lands of a rifled barrel, often expressed in hundredths of an inch  
12 (".38 caliber") or millimeters ("7mm Caliber").
- 13 3. Ammunition: A numerical term included in a cartridge name to  
14 indicate a rough approximation of the bullet diameter.

15  
16 **Cartridge** – A single round of ammunition consisting of the case, primer and  
17 propellant with or without one or more projectiles. Also applies to a shotshell.  
18

19 **Round** – One complete small arms cartridge.  
20

21 **Yaw** – The angle between the longitudinal axis of a projectile and a line  
22 tangent to the trajectory through the center of gravity.  
23

24 Page 5, line 18 – *The AR-15 and M4 are both designed to fire a .223 round...*  
25 This statement is inaccurate inasmuch as AR-15 type rifles and pistols have  
26 been manufactured in a multitude of calibers, to include .223 Remington (.223).  
27 Additionally, the M4, is not chambered for .223 but for the similar 5.56x45mm  
28 NATO (5.56mm NATO).

1           Page 5, Line 18 - ...*that tumbles upon hitting flesh and rips thru the human*  
2 *body.*

3           The projectile is the only portion of a “Round” that is expelled significantly  
4 forward of the firearm upon firing. Those components not consumed by the  
5 discharge are ejected out the side of the AR-15/M4. I proceed under the assumption  
6 that Colonel (Ret.) Tucker’s opinions on the terminal performance of a “round” are  
7 actually referring to the projectile as opposed to the entire cartridge.

8           In my opinion, it is factually inaccurate and misleading to state or imply that  
9 either the AR-15 or the M4 have been designed solely to fire any singular type of  
10 projectile.

11           Cartridges typically are manufactured with varying types of projectiles. For  
12 example, I have consulted with the U.S. Military (including the USMC) on the  
13 effectiveness of at least the following 5.56mm NATO cartridges which contain  
14 different projectiles:

15           M193 – A 2-part projectile consisting of a copper jacket and a lead  
16 slug.

17           M855 – A 3-part projectile consisting of a copper jacket, a lead slug  
18 and a steel penetrator.

19           M855 A1 – A 3-part projectile consisting of a copper jacket, a non-  
20 lead slug and a steel penetrator.

21           MK318 Mod-1 SOST – A 2-part projectile containing a copper jacket  
22 and a non-lead slug.

23           MK 262 Mod-1 – A 2-part projectile consisting of a copper jacket and  
24 a lead slug.

25           Inasmuch as it is inaccurate to state that either of the discussed firearms was  
26 designed specifically to fire a single type of projectile, it is similarly inaccurate to  
27 state that they were designed to fire a projectile “that tumbles upon hitting flesh and  
28 rips thru the human body”.

1       The firearms community has traditionally used the term “Tumble” to indicate  
2 a projectile overturning when in contact with tissue. The more correct word is  
3 “Yaw”.

4       When using “Tumble”, it is easy to envision a projectile turning end over end,  
5 similar to a gymnast “tumbling” across a gymnasium floor. This is misleading as I  
6 have witnessed very few projectiles that actually make a complete revolution of  
7 point forward - base forward – point forward in tissue simulant or animal tissue.

8       It is quite common for a projectile to yaw or turn in tissue. This yaw can  
9 continue until the projectile base is traveling forward.

10      In my training and experience, projectiles can deform, expand, fragment  
11 and/or a combination of all three. Yaw is typically seen most while a projectile  
12 remains intact. It can contribute to expansion and fragmentation.

13      Page 5, line 19 - *A single round is capable of severing the upper body from*  
14 *the lower body, or decapitation.*

15      As previously pointed out, the statement is unsupported by any reference and  
16 is so ridiculous as to bring discredit to the entire opinion.

17      In almost 26 years of professional involvement in the field of wound  
18 ballistics, I have never heard, even anecdotally, of an incident wherein a person was  
19 decapitated or their upper body was severed from their lower body as a result of  
20 being shot by a single projectile fired from any small arm. It is notable that the  
21 .223/5.56 is on the lower end of terminal performance potential of the vast calibers  
22 available in centerfire rifles. In fact, the .223/5.56 is below the allowable minimum  
23 cartridges for deer hunting in some states.

24      Additionally, since reading Colonel (Ret.) Tucker’s supplemental report, I  
25 have shared that statement with many associates in the firearms field. All have  
26 questioned the credentials of an “expert” that would make such a claim.

27      It is my opinion that no examples have been provided because such  
28 performance has never been witnessed.

1           Page 5, line 20 - *The round is designed to kill, not wound...*

2           The vast majority of cartridges or projectiles can reasonably be described as  
3 “designed to kill”. Other than specialized cartridges, typically marketed as “Less  
4 than Lethal”, I am unaware of any cartridge or projectile that is “designed to  
5 wound”.

6           Page 5, Line 21 - *...both the AR-15 and M4 contain barrel rifling to make the*  
7 *round tumble upon impact and cause more severe injury.*

8           The aforementioned Glossary of the SAAMI defines “Rifling” as:

9           Any type of spiral internal bore feature of the barrel wall that imparts  
10 spin on the projectile for the purpose of stabilizing it in flight. This  
11 may be a series of lands and grooves, polygonal, hexagonal, or other  
configurations.

12          It defines “Twist” as:

13          The distance required for one complete turn of rifling usually  
14 expressed as a ratio, e.g., 1 in 10 inches.

15          The AR-15 was originally manufactured with a 1:14 twist rate but has also  
16 been offered with faster twist rates (I am aware of more than 5 others). To my  
17 knowledge, the M4 has only been offered with a 1:7 twist rate (twice as fast as 1:14).

18          Inasmuch as it is inaccurate to refer to the “rifling” as a static feature of “Both  
19 the AR-15 and M4”, it is similarly inaccurate to state that they “contain barrel rifling  
20 to make the round tumble upon impact and cause more severe injury.” As the  
21 aforementioned definition states, the rifling exists for the purpose of stabilizing the  
22 anticipated projectiles fired while they are in flight, an aspect of external ballistics.  
23 Faster twist, as seen in the 1:7 rate of the M4 vs. the 1:14 twist of the original AR-  
24 15, results in greater stability and increased resistance to yaw.

25          Page 5, Line 25 – *Automatic rifles, like the M-16 and its more modern carbine*  
26 *variant M4, are functionally similar to semiautomatic rifles regulated under*  
27 *California’s AWCA and often are equipped with the very same features, like pistol*  
28 *grips and adjustable stocks. It is my opinion, based on my military service, that*

1 *these features, individually and in combination, make semiautomatic rifles more*  
2 *lethal and most useful in combat settings, as described in more detail below.*

3       Pistol grips and adjustable stocks help increase the ability of a shooter to  
4 control a firearm. Firearms, by their very nature, are dangerous weapons. They are  
5 capable of launching projectiles which have the potential to seriously injure and  
6 potentially kill. Increasing the ability to control a dangerous device is not a benefit  
7 solely limited to combat. It is something that should be sought for all firearms in all  
8 contexts. There is no legitimate reason to inhibit any model of firearm's accuracy or  
9 controllability.

10       Page 6, Line 9 – *Changing magazines during intense combat is the most*  
11 *important individual skill taught to Marines.*

12       Though I have never served in the military, all training that I have received  
13 says that the ability to hit the target (Marksmanship) is a more important skill than  
14 “changing magazines during intense combat” or in my case, use of a firearm in  
15 defense of myself or others.

16       Page 6, Line 13 - *In a civilian self-defense context, by contrast, an individual*  
17 *would not have a need for such a high rate of fire.*

18       First, Colonel (Ret.) Tucker conflates volume of projectiles fired with rate of  
19 projectiles fired. The rate he quotes, 45 rounds/minute, is equivalent to  
20 approximately 1 round in 1.3333 seconds. Time is of the essence in situations  
21 wherein one's life is in danger. It is certainly reasonable to believe that a person in a  
22 self-defense situation would have a need to fire 1 round every 1.3333 seconds (e.g.,  
23 3 rounds in about 4 seconds). In any event, Col. (Ret.) Tucker's point is irrelevant  
24 because none of the features that can qualify a semiautomatic, centerfire rifle with a  
25 non-fixed magazine as an “assault weapon” (pistol grip, flash suppressor,  
26 adjustable/folding stock) affects the rifle's rate of fire or its capacity for ammunition.  
27 A civilian can have the same “rate of fire” or ammunition capacity regardless of  
28 whether the rifle is an “assault weapon.”

1       Page 6, line 18 – *The pistol grip beneath the action of an automatic rifle*  
2 *serves only two purposes. First, the pistol grip allows the rifleman to pull the rifle*  
3 *into her (sic) shoulder with each shot, an action which increases stock weld, reduces*  
4 *semi-automatic/automatic recoil, and reduces barrel rise.*

5       I do not disagree with Colonel (Ret.) Tucker’s opinion on two of the  
6 advantages of a pistol grip beneath the action. However, there are other advantages  
7 as well, which I’ll address later. Increasing stock weld, reducing recoil and  
8 reducing barrel rise all lead to improved control of the firearm and accuracy. The  
9 disagreement is only to Col. (Ret.) Tucker’s value of that purpose. As previously  
10 stated, improving control of any firearm is a desirable endeavor for both combat and  
11 self-defense, not a negative feature.

12       Practically all shoulder-fired weapons have a “pistol grip”. Some are more  
13 horizontal than others. For purposes of this discussion, I will assume that Colonel  
14 (Ret.) Tucker is referring to pistol grips that are more vertical, such as those  
15 typically found on the AR-15 and M4 firearms as issued to the U.S. Military.

16       Ergonomics is the primary purpose of the pistol grip. The use of a near-  
17 vertical pistol grip far predates the AR-15 series of rifles. For example, the  
18 Thompson Sub Machine Gun had a near-vertical rear pistol grip. Some versions  
19 also had a near-vertical forward pistol grip.

20       The vertical pistol grip design is easier to operate with one hand than less-  
21 pronounced pistol grips, such as those found on the M1 Garand. This is because it  
22 places the hand in a location where the user can manipulate the rifle’s primary  
23 controls, including the trigger and selector (safety). This can also be of particular  
24 benefit when needing to use one hand to hold a flashlight or call 911.

25       This would certainly be a desirable attribute of a firearm used for self-defense.  
26 Anything that decreased ergonomics could lead to a failure to defend oneself.

27  
28

1       Page 6, line 24 - *Absent any pistol grip, a semi-automatic rifle would be*  
2 *difficult to operate when fired rapidly, as the rifle barrel would seesaw up and down*  
3 *with each shot fired in succession.*

4       The above statement, combined with a prohibition on vertical pistol grips on  
5 civilian-owned semi-automatic rifles, appears to infer that any semi-automatic rifle  
6 suitable for self-defense should be difficult to operate, or at least at certain rates of  
7 fire. That is counterintuitive and finds no support in any training materials I have  
8 ever reviewed.

9       Additionally, the statement can be proven false simply by pointing out that the  
10 M1 Carbine, M1 Garand, M14 and BAR rifles were all used by the USMC, with  
11 great effectiveness, despite not possessing a vertical pistol grip. Indeed, the infamous  
12 Lieutenant General George S. Patton, Jr. described the M-1 Garand as “the greatest  
13 battle implement ever devised.” That rifle has no vertical pistol grip, no flash  
14 suppressor, no adjustable/folding stock, and its magazine is fixed as far as California  
15 law is considered.

16       Page 7, line 3 – *The forward pistol grip provides leverage to tighten a stock*  
17 *weld on short-barrel automatic weapons and reduces recoil and barrel rise on*  
18 *short-barrel automatic rifles. Forward pistol grips were added to the M4 to*  
19 *increase the M4 killing efficiency.*

20       The statement specifically refers to “short barrel automatic rifles” a class of  
21 firearms not contemplated under California’s Assault Weapon Control Act.

22       Furthermore, I am unaware of any evidence that this statement is true. As  
23 previously mentioned, pistol grips are used for ergonomics and control. A forward  
24 pistol grip is similarly used to enhance control.

25       Although Colonel (Ret.) Tucker mentions the forward pistol grip’s ability to  
26 “increase the M4 killing efficiency”, most Thompson Submachine Guns exhibiting  
27 this trait were civilian weapons. The M1 Thompson most commonly issued to the  
28 U.S. Military did not have a vertical pistol grip. The U.S. Military, prior to WWII,

1 purchased the 1928A1 model Thompson, lacking a forward pistol grip. During  
2 WWII, the Thompson was modified into the M1 and M1A1 models, both lacking a  
3 forward pistol grip.

4 Page 7, Line 7 –*A folding stock causes weapon instability.*

5 Not all folding stocks are the same. There are numerous examples of folding  
6 stocks that are stable when deployed. Additionally, the M4, as issued, has a  
7 telescoping stock, not a folding stock. There are aftermarket accessories that will  
8 allow for a folding stock on an M4 but, in my experience, they are the exception on  
9 AR-15/M4 rifles/carbines. The folding adapters for typical AR-15/M4 series of rifle  
10 are not capable of semi or full automatic fire with the stock folded.

11 Page 7, line 12 - *Outside of the military context, folding stocks that are not*  
12 *properly locked in place can cause significant safety risks to the shooter due to*  
13 *recoil.*

14 I am unaware of any reports, even anecdotally, of recoil injuries received by  
15 any shooter of a .223 or 5.56mm NATO chambered pistol or rifle fired with an  
16 unlocked folding stock.

17 A telescoping/adjustable stock enables the length of pull of a firearm to be  
18 quickly adjusted to fit people of different sizes. It is well understood that a stock  
19 fitted to a tall person would likely be too long for a short person. The  
20 aforementioned SAAMI Glossary defines length of pull as:

21 The distance from the center of the trigger to the center of the  
22 buttpad or recoil pad.

23 Additionally, because it allows for a more compact overall size, it enhances  
24 the user's ability to maneuver in the tight spaces of a home.

25 Page 7, Line 23 – *The purpose of the flash suppressor is to reduce combat*  
26 *signature by cooling and disbursing burning gases. This makes it more difficult for*  
27 *the enemy to pinpoint a rifleman's location, especially in low light conditions. The*  
28 *flash suppressor facilitates night combat operations by reducing muzzle flash and*

1 *mitigating muzzle flash impact on night vision goggles. This accessory serves*  
2 *specific combat-oriented purposes and is not needed for self-defense.*

3 Flash suppressors dissipate the bright light created by the burning of residual  
4 propellant once the projectile exits the muzzle. This dissipation of light reduces the  
5 level of light exposure experienced by the shooter and can shorten the recovery time  
6 of vision in a dark environment. This shorter recovery time enables a more rapid  
7 evaluation of the remaining threat and need, or lack thereof, to continue the  
8 application of force. It is my opinion that any device which can shorten the recovery  
9 time of vision in a dark environment is useful for self-defense.

10 The definition of “Flash Suppressor”, according to 11 CCR § 5471(r), says  
11 nothing about hiding flash from those in the direct line of fire :

12 Any device attached to the end of the barrel, that is designed,  
13 intended, or functions to perceptibly reduce or redirect muzzle flash  
from the shooter’s field of vision.

14 Page 8, Line 5 – *Any increase to magazine capacity increases the killing*  
15 *efficiency of the automatic rifle.*

16 California’s Assault Weapon Control Act only limits magazine capacity on  
17 rifles with fixed magazines. Therefore, Colonel (Ret.) Tucker’s statement is  
18 irrelevant.

19 Page 8, line 10 - *As noted above in connection with detachable magazines, an*  
20 *individual using a rifle in self-defense would not need such a high, continuous rate*  
21 *of fire.*

22 Once again, Colonel (Ret.) Tucker conflates rate of fire with volume of fire.  
23 No explanation is provided as to why the appropriate number of cartridges for self-  
24 defense use of a fixed magazine rifle has been determined to be 10 or less.

25 Page 8, Line 13 – *The AR-15 is an offensive combat weapon no different in*  
26 *function or purpose than an M4.*

27 This contradicts his previous statement that the AR-15 and M4 differ in  
28 function (automatic vs. semi-automatic fire).

1       The ability to use the AR-15, or any weapon, for offensive purposes does not  
2 negate that it can also be used for defensive purposes, just like a handgun. Colonel  
3 (Ret.) Tucker has not identified any military that employs the AR-15. Its use as a  
4 combat tool thus has not been established. In my experience as a law enforcement  
5 officer and trainer, the AR-15 is a preferred tool for defense of officers and  
6 individuals.

7       Page 8, Line 14 – *In my opinion, both weapons are designed to kill as many*  
8 *people as possible, as efficiently as possible, and serve no legitimate sporting or*  
9 *self-defense purpose.*

10      In my opinion, the AR-15 was not designed to “kill as many people as  
11 possible, as efficiently as possible”. The intent of the design was to be effective in  
12 all anticipated use, including law enforcement and self-defense.

13      In any event, Colonel (Ret.) Tucker fails to explain why a weapon “designed  
14 to kill as many people as possible, as efficiently as possible” could “serve no  
15 legitimate sporting or self-defense purpose”.

16      Hunting, target shooting or self-defense cannot be considered to be  
17 illegitimate simply by the choice of a particular type of firearm. It is the abuse or  
18 misuse of any firearm that is illegitimate. I have personally provided training to FBI  
19 Agents and other law enforcement officers in the use of the types of firearms being  
20 discussed here. As I’ve stated in previous opinions, all legal law enforcement use of  
21 firearms is defensive in nature.

22      Page 8, Line 19 – *Defensive combat is generally up close and very personal.*  
23 *At that range, it is very difficult to use a rifle as a defensive weapon, except as a*  
24 *blunt force instrument.*

25      Defensive combat is not “generally up close and very personal”, though it  
26 certainly can be. Soldiers attacked by long-range rifle fire who then respond with  
27 fire of their own are certainly engaged in defensive combat.

28

1       A term common to both law enforcement and the military is “Close Quarters  
2 Combat” (CQB). Although pistols can and have been employed for CQB purposes,  
3 the use of an M4-style carbine is very common in both law enforcement and the  
4 military. Over the past 20 years, there has been news coverage of U.S. Marines  
5 engaged in or on their way to potentially engage in CQB. The vast majority of those  
6 Marines were armed with M4 or M16 style carbines/rifles and/or squad automatic  
7 weapons.

8       *Page 8, Line 23 – The features identified in California Penal Code § 30515(a)  
9 enhance the lethality of both semiautomatic and automatic rifles and are most  
10 appropriate for combat applications when used in conjunction with those types of  
11 weapons systems.*

12       Despite a failure to define “enhance the lethality”, there is no explanation as to  
13 why these features are most appropriate for combat and less appropriate for self-  
14 defense.

15  
16       I declare under penalty of perjury that the foregoing is true and correct.  
17 Executed within the United States on February 3, 2023.

18         
19

20       J. Buford Boone III  
21       Boone Ballistics, LLC  
22       Member  
23       P.O. Box 2370  
24       Tuscaloosa, AL 35403  
25  
26  
27  
28

**CERTIFICATE OF SERVICE**  
IN THE UNITED STATES DISTRICT COURT  
CENTRAL DISTRICT OF CALIFORNIA  
SOUTHERN DIVISION

Case Name: *Rupp, et al. v. Becerra*  
Case No.: 8:17-cv-00746-JLS-JDE

IT IS HEREBY CERTIFIED THAT:

I, the undersigned, am a citizen of the United States and am at least eighteen years of age. My business address is 180 East Ocean Boulevard, Suite 200, Long Beach, California 90802.

I am not a party to the above-entitled action. I have caused service of:

## EXPERT WITNESS REBUTTAL REPORT OF J. BUFORD BOONE III

on the following party by electronic mail.

Xavier Becerra  
Attorney General of California  
Anna Ferrari  
Deputy Attorney General  
Email: [anna.ferrari@doj.ca.gov](mailto:anna.ferrari@doj.ca.gov)  
455 Golden Gate Ave., Suite 11000  
San Francisco, CA 94102

I declare under penalty of perjury that the foregoing is true and correct.

Executed February 3, 2023.

*Laura Palmerin*  
Laura Palmerin

**CERTIFICATE OF SERVICE**  
IN THE UNITED STATES DISTRICT COURT  
CENTRAL DISTRICT OF CALIFORNIA  
SOUTHERN DIVISION

Case Name: *Rupp, et al. v. Bonta*  
Case No.: 8:17-cv-00746-JLS-JDE

**IT IS HEREBY CERTIFIED THAT:**

I, the undersigned, am a citizen of the United States and am at least eighteen years of age. My business address is 180 East Ocean Boulevard, Suite 200, Long Beach, California 90802.

I am not a party to the above-entitled action. I have caused service of:

**DECLARATION OF SEAN A. BRADY IN SUPPORT OF PLAINTIFFS'  
MOTION TO EXCLUDE THE TESTIMONY OF DEFENDANT'S EXPERT  
WITNESS RYAN BUSSE UNDER FEDERAL RULE OF EVIDENCE 702**

on the following party by electronically filing the foregoing with the Clerk of the District Court using its ECF System, which electronically notifies them.

Xavier Becerra  
Attorney General of California  
Anna Ferrari  
Deputy Attorney General  
Email: [anna.ferrari@doj.ca.gov](mailto:anna.ferrari@doj.ca.gov)  
Christina R.B. Lopez  
Email: [christina.lopez@doj.ca.gov](mailto:christina.lopez@doj.ca.gov)  
John D. Echeverria  
Email: [john.echeverria@doj.ca.gov](mailto:john.echeverria@doj.ca.gov)  
455 Golden Gate Ave., Suite 11000  
San Francisco, CA 94102

I declare under penalty of perjury that the foregoing is true and correct.

Executed March 24, 2023.

*Laura Palmerin*  
Laura Palmerin